

REMARKS

The Applicant has received and reviewed the Office Action dated July 28, 2005 wherein the Office rejected claims 1, 3-13, 16 and 20 under 35 U.S.C. §103(a) as being unpatentable over the reference of Takahashi (U.S. Patent No. 5,136,681); rejected claims 2, 14, and 17 under 35 U.S.C. §103(a) as being unpatentable over the reference of Takahashi in view of the reference of Snow et al. (U.S. Patent 5,039,193); and rejected claim 15 also under 35 U.S.C. §103(a) as being unpatentable over the reference of Takahashi in view of the reference of Snow et al.

Rejection under 35 U.S.C §103(a) to Takahashi

Applicant's claims 1, 3-13, 16 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the reference of Takahashi (U.S. Patent No. 5,136,681).

The Applicant respectfully disagrees with the Office's above rejection.

In regards to Applicant's independent claim 1, Applicant's claim 1 calls for an optical coupler that includes:

“... a further optical fiber rotatably mounted with respect to the first optical fiber with an end of the first optical fiber positionable proximate an end of the further optical fiber to permit transfer of an optical signal between the first optical fiber and the further optical fiber while permitting rotation thereof.” (Emphasis added.)

The Applicant respectfully submits that the reference of Takahashi '681 does not teach the feature of “...a further optical fiber rotatably mounted with respect to the first optical

fiber ... to permit transfer of an optical signal between the first optical fiber and the further optical fiber while permitting rotation thereof" as called for in Applicant's independent claim 1. (Emphasis added.) It is first noted that Takahashi '681 does not teach the rotation of Takahashi '681's optical fibers 33 and 34 but instead teaches the revolving of Takahashi '681's ferrule, and more specifically, the revolving of Takahashi '681's ferrule 42 caused by the operator's revolving of Takahashi '681's knob 42c in order to obtain a desired attenuation value. (See column 5, lines 64-67 and column 6, lines 1-4.) The Applicant submits that Takahashi '681's ferrule is different from Takahashi '681's optical fibers 33 and 34.

It is secondly noted that although Takahashi '681 teaches the revolving of Takahashi '681's ferrule 42, note that the revolving of Takahashi '681's ferrule 42 occurs before a transfer of an optical power. More specifically, Takahashi '681 teaches that once the desired attenuation value is obtained by the revolving of the ferrule 42, an adhesive agent is then "... poured into the gap between ferrule 42 and holder 52..." to fasten ferrule 42 to holder 52, and set the desired attenuation value. (See column 6, lines 1-8.) Note in column 6, lines 13-14 wherein Takahashi '681 discloses "... the attenuation which has been set before cannot change after readjustment." (Emphasis added.) The Applicant submits that it is only after the desired attenuation value is set in Takahashi '681's device does a transfer of an optical power occur.

It is for the above reasons that the Applicant respectfully submits that the reference of Takahashi '681 does not teach the feature of permitting the "... transfer of an optical

signal between the first optical fiber and the further optical fiber while permitting rotation thereof....” of Applicant’s independent claim 1.

The Applicant also submits that the reference of Takahashi ‘681 does not teach the feature of “... an end of the first optical fiber positionable proximate an end of the further optical fiber...” of Applicant’s independent claim 1. Note in Figures 3 and 4 that the ends of Takahashi ‘681’s optical fibers 33 and 34 are not shown as being positionable proximate each other. Takahashi ‘681 instead shows the ends of his ferrules 41 and 42 as being positioned proximate each other. The Applicant submits that Takahashi ‘681’s ferrules 41 and 42 are different from Takahashi ‘681’s optical fibers 33 and 34.

In regards to the Office’s comments on page 2, lines 6-13 that “... the fibers are implied to be in the ferrules of Takahashi (U.S. Patent 5,136,681)...” because U.S. Patent 4,953,941 “...teaches there are fibers in the ferrules (see col 5, lines 34-50”, the Applicant respectfully submits that the mere fact that Takahashi ‘681’s optical fibers 33 and 34 may be located in Takahashi ‘681’s ferrules 41 and 42 does not make obvious the feature of “... an end of the first optical fiber positionable proximate an end of the further optical fiber...” of Applicant’s independent claim 1.

In regards to Applicant’s independent claim 11, Applicant’s claim 11 calls for an apparatus for optical coupling and optical decoupling that includes “...a first optical fiber having an angle cut terminus...” and “... a second optical fiber having an angle cut terminus with the angle cut terminus of the first optical fiber...” The Applicant submits

that the reference of Takahashi '681 does not teach Takahashi '681's optical fibers 33 and 34 as having an angle cut terminus. In regards to Takahashi '681's ferrules 41 and 42, although Takahashi '681 show ferrules 41 and 42 as each having an angled end, the Applicant submits that Takahashi '681's ferrules 41 and 42 are not optical fibers.

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On page 5, lines 8-11 of the Office Action, the Office stated:

"While the reference does not specifically show first and second fibers having an angle cut terminus, fibers are implied to be in the ferrules 41a and 41b to permit light transmission described above and the ferrules (and this fibers) have angle cut terminus."

Although the Applicant agrees with the Office that Takahashi '681 does not show first and second fibers having an angle cut terminus, the Applicant respectfully disagrees with the Office statement that Takahashi '681's optical fibers 33 and 34 have angle cut terminus because Takahashi '681's ferrules 41 and 42 have angle cut terminus. Referring to Takahashi '681's Figure 4, the Applicant submit that the transfer of an optical power can occur with the presence of a gap/space located between the ferrule and in turn the optical fibers as evidence in Takahashi '681's Figure 4 and Takahashi '681's column 6, lines 29-43.

Since optical power can occur with the presence of a gap/space located between the ferrule and in turn the optical fibers, the Applicant respectfully submits that the aforementioned is evidence that the presence of angle cut terminus on Takahashi '681's ferrules 41 and 42 does not translate to Takahashi '681's optical fibers 33 and 34 having angle cut terminus in order for Takahashi '681's to transfer of optical power.

Applicant's independent claim 11 calls for an apparatus for optical coupling and optical decoupling that includes "... a rotational joint located on the first optical fiber..." The Applicant respectfully submits that a review of the reference of Takahashi '681 that Takahashi '681 does not teach a rotational joint located on Takahashi '681's optical fiber 33 or optical fiber 34.

In regards to the Office's statement on page 4, lines 21-22 that Takahashi '681 teaches "... a rotational joint located on the first optical fiber (col 5, lines 1-4 and Figure 3, ref sign 31) ..." and that the "... rotation joint allows the ferrule 41b to rotate about the ferrule 41 ..." (page 5, line 6), the Applicant respectfully but strenuously disagrees with the aforementioned. It is submitted that Takahashi '681 does not teach a rotational joint located on Takahashi '681's ferrule 41 or that Takahashi '681's cylinder 41b rotates about Takahashi '681's ferrule 41. Referring to column 5, lines 1-4, note that Takahashi '681 instead teaches "... cylinder 41b can rotate around the optical axis of the first ferrule 41." (Emphasis added.) It is submitted that rotating around an optical axis of the first ferrule 41 is different from actually rotating about the first ferrule.

Applicant's independent claim 11 also calls for an apparatus for optical coupling and optical decoupling that includes:

"...an alignment sleeve for holding the angle cut terminus of the first optical fiber and the angle cut terminus of the second optical fiber in rotational alignment with respect to each other."

The Applicant respectfully submits that the reference of Takahashi '681 does not teach the above. In regards to Takahashi '681's adapter 59, it is submitted that Takahashi '681's adapter 59 is for supporting Takahashi '681's ferrules 33 and 34 therein.

In regards to Applicant's independent method claim 16, Applicant's method claim 16 calls for a method of twist free optical coupling that includes the step of "...forming a rotational butt coupled joint in an optical lead having a terminus;..." The Applicant respectfully submits that the reference of Takahashi '681 does not teach the aforementioned step. In regards to Takahashi '681's cylinder 41a, although Takahashi '681's Figure 3 shows Takahashi '681's cylinder 41a as having a terminus, the Applicant submits that Takahashi '681's Figure 3 does not show cylinder 41a as having a rotational butt coupled joint in an optical lead. Note per the Applicant's above arguments that Takahashi '681's cylinder 41b does not rotate about Takahashi '681's ferrule 41 but rotates around the optical axis of the first ferrule 41.

Applicant's method claim 16 also calls for a method of twist free optical coupling that include the steps of:

"... forming a coupling angle cut face on the terminus of the optical lead; forming a mating coupling angle cut face on the terminus of another optical lead;..."

The Applicant respectfully submits that the reference of Takahashi '681 does not teach the steps as Takahashi '681 does not teach Takahashi '681's optical fibers 33 and 34 as

having a coupling angle cut face. Instead, Takahashi '681 show in Figures 3 and 4 Takahashi '681's ferrules 41 and 42 as having the angle cut face. The Applicant respectfully submits that Takahashi '681's ferrules 41 and 42 are different from Takahashi '681's optical fibers 33 and 34.

Rejection under 35 U.S.C §103(a) to the combination of Takahashi and Snow et al.

Applicant's independent claims 2, 14, 15 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the reference of Takahashi in view of the reference of Snow et al. (U.S. Patent 5,039,193).

In regards to Applicant's independent claim 15, independent claim 15 calls for an apparatus for optical coupling and decoupling that includes "...a first optical lead having a butt connectable end ..." and "a second optical lead having a butt connectable end ..." The Applicant respectfully submits that the combination of the references of Takahashi '681 and Snow et al. does not teach the aforementioned. More specifically, Takahashi '681 does not teach Takahashi '681's optical fibers 33 and 34 having a butt connectable end and Snow et al. does not teach Snow et al.'s optical fibers 16 and 30 having a butt connectable end.

On page 9, line 3 of the present Office Action, the Office stated "... the reference does not specifically state 'having a butt connectable end'..." The Applicant agrees with the Office's aforementioned statement.

On page 9, lines 4-6 of the present Office Action, the Office however stated:

“... these types of connections are implied since fibers are implied to be in the ferrules 41a and 41b to permit light transmission described above. The figure shows the ferrule 41a and 41b (and thus fiber) butted up against each other.”

The Applicant respectfully disagrees with the Office’s above statement. It is submitted that even if Takahashi ‘681’s optical fibers 33 and 34 are located in Takahashi ‘681’s ferrules 41a and 41b, Takahashi ‘681’s does not teach or even suggest that Takahashi ‘681’s optical fibers 33 and 34 butted up against each other. In regards to light transmission, the Applicant has noted per the above argument that Takahashi ‘681 teaches that the transfer of an optical power can occur with the presence of a gap/space located between the ferrule and in turn the optical fibers as evidence in Takahashi ‘681’s Figure 4 and Takahashi ‘681’s column 6, lines 29-43.

Applicant’s independent claim 15 also calls for an apparatus for optical coupling and decoupling that includes:

“... a transparent substance extending between the butt connectable end of the first optical lead and the butt connectable end of the second optical lead ...”

It is submitted that the combination of the references of Takahashi ‘681’s and Snow et al. does not teach the above as Takahashi ‘681 does not teach optical fibers 33 and 34 having a butt connectable end and Snow et al. does not teach optical fibers 16 and 30 having a butt connectable end.

In further regards to Applicant's dependent claims 2-10, 12-14, and 17-20, Applicant's dependent claims 2-10 each depend on Applicant's independent claim 1 and Applicant's dependent claims 12-15 each depend on Applicant's independent claim 11. Since Applicant's independent claim 1 and Applicant's independent claim 11 are allowable for the reasons given above, Applicant's dependent claims 2-10 and 12-14 should also be allowable. Applicant's dependent claims 17-20 each depend on Applicant's independent claim 16. Since Applicant's independent claim 16 is allowable for the reasons given above, Applicant's dependent claims 17-20 should also be allowable.

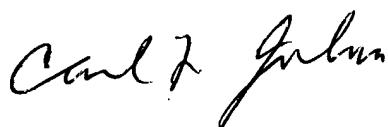
In view of the above, it is submitted that the application is in condition for allowance.

Allowance of claims 1-20, as amended, is respectfully requested. Applicant has enclosed a version of the amendment showing changes made with this response.

Respectfully submitted,

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Enclosure